

Docket No.: 13987-00020-US
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Petra Cirpus et al.

Application No.: National Phase of
PCT/EP2005/001863

Confirmation No.: N/A

Filed: Concurrently Herewith

Art Unit: N/A

For: METHOD FOR PRODUCING
POLYUNSATURATED FATTY ACIDS IN
TRANSGENIC PLANTS

Examiner: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 CFR 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement accompanies the new patent application submitted herewith.

In accordance with 37 CFR 1.98(a)(2)(ii), Applicant has not submitted copies of U.S. patents and U.S. patent applications. Applicant submits herewith copies of foreign patents and non-patent literature in accordance with 37 CFR 1.98(a)(2).

This statement is not to be interpreted as a representation that the cited documents are material, that a search has been conducted, or that no other relevant information exists. Nor shall the citation of any document herein be construed per se as a representation that such document is prior art. Moreover, Applicants understand the Examiner will make an independent evaluation of the cited documents.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 03-2775, under Order No. 13987-00020-US.

Respectfully submitted,

By 
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet	1	of	5	Attorney Docket Number	13987-00020-US
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Complete if Known

Application Number	Not Yet Assigned
Filing Date	Concurrently Herewith
First Named Inventor	Petra Cirpus
Art Unit	N/A
Examiner Name	Not Yet Assigned

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.*	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
/E.M./	AA*	US-5,614,393	03-25-1997	Thomas T. L. et al.	
/E.M./	AB*	US-6,043,411	03-28-2000	Nishizawa et al.	
/E.M./	AC*	US-2004/0111763	06-10-2004	Heinz et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.*	Foreign Patent Document Country Code ¹ -Number ³ , Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁴
/E.M./	BA	WO-91/13972	09-19-1991	Calgene Inc.		
	BB	WO-93/06712	04-15-1993	Rhone-Poulenc Agrochimie		
	BC	WO-93/11245	06-10-1993	E.I. DuPont De Nemours and Co.		
	BD	EP-0 550 162	07-07-1993	Pioneer Hi-Bred International, Inc.		
	BE	WO-94/11516	05-26-1994	E.I. duPont de Nemours And Company		
	BF	WO-94/18337	08-18-1994	Monsanto Company & Michigan State University		
	BG	WO-96/21022	07-11-1996	Rhone-Poulenc Agrochimie		
	BH	WO-97/21340	06-19-1997	Cargill, Inc.		
	BI	WO-97/30582	08-28-1997	Carnegie Institution Of Washington & Monsanto Co., Inc.		
	BJ	EP-0 794 250	09-10-1997	Soremartec S.A. & Ferrero S.p.A.		
	BK	WO-98/46776	10-22-1998	Calgene LLC		
	BL	WO-98/46764	10-22-1998	Calgene LLC & Abbott Laboratories		
	BM	WO-98/46763	10-22-1998	Calgene LLC & Abbott Laboratories		
	BN	WO-98/46765	10-22-1998	Calgene LLC & Abbott Laboratories		
	BO	WO-99/27111	06-03-1999	University of Bristol		
	BP	WO-99/64616	12-16-1999	Abbott Laboratories		
	BQ	WO-00/12720	03-09-2000	Abbot Laboratories		
	BR	WO-00/21557	04-20-2000	Merck & Co., Inc.		
	BS	WO-01/59128	08-16-2001	BASF Aktiengesellschaft	See US 2004/0111763	
	BT	WO-02/08401	01-31-2002	Abbott Laboratories		
	BU	WO-02/44320	06-06-2002	Xenon Genetics Inc.		
	BV	WO-02/077213	10-03-2002	University of Bristol		

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				Art Unit	N/A
				Examiner Name	Not Yet Assigned
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/E.M./	BW	CA-2 485 060	11-13-2003	BASF Plant Science GmbH	
	BX	DE-102 19 203	11-13-2003	BASF Plant Science GmbH	See CA 2 485 060
↓	BY	WO-2004/071467	08-26-2004	E. I. duPont de Nemours and Company	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 608. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. * CITE NO.: Those application(s) which are marked with an asterisk (*) next to the Cite No. are not supplied (under 37 CFR 1.96(a)(2)(viii)) because that application was filed after June 30, 2003 or is available in the IFW. * Applicant's unique citation designation number (optional). * See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 601.04. * Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). * For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. * Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. * Applicant is to place a check mark here if English language Translation is attached.

NON PATENT LITERATURE DOCUMENTS					
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			
/E.M./	CA	Cronan, J.E. et al., "Biosynthesis of Membrane Lipids", in "E. coli und Salmonella", Section B2, Neidhardt, F.C. et al. eds., ASM Press, Washington, DC, (1996), pp. 612-636.			T ²
	CB	Gerhardt, B., "Fatty Acid Degradation in Plants", Prog. Lipid Res. 31:4 (1992), pp. 417-446.			
	CC	Wada, H. et al., "Enhancement of Chilling Tolerance of a Cyanobacterium by Genetic Manipulation of Fatty Acid Desaturation", Nature 347 (1990), pp. 200-203.			
	CD	Yu, R. et al., "Production of Eicosapentaenoic Acid by a Recombinant Marine Cyanobacterium, Synechococcus sp.", Lipids, 35:10 (2000), pp. 1061-1064.			
	CE	Magnuson, K. et al., "Regulation of Fatty Acid Biosynthesis in Escherichia coli", Microbiological Reviews, 57:3 (1993), pp. 522-542.			
	CF	Akimoto, M. et al., "Carbon Dioxide Fixation and Polyunsaturated Fatty Acid Production by the Red Alga Porphyridium Cruentum", Applied Biochemistry and Biotechnology 73 (1998), pp. 269-278.			
	CG	Stymne, S., "Biosynthesis of 'Uncommon' Fatty Acids and Their Incorporation into Triacylglycerols", Biochemistry and Molecular Biology of Membrane and Storage Lipids of Plants, N. Murata et al., Editors, The American Society of Plant Physiologists (1993), pp. 150-158.			
	CH	Frentzen, M., "Acyltransferases from Basic Science to Modified Seed Oils", Fett/Lipid, 100:4-5, S. (1998), pp. 161-166.			
	CI	Shanklin, J. et al., "Desaturation and Related Modifications of Fatty Acids", Annu. Rev. Plant Physiol. Plant Mol. Biol. 49 (1998), pp. 611-641.			
	CJ	Drexler, H. et al., "Metabolic Engineering of Fatty Acids for Breeding of New Oilseed Crops: Strategies, Problems and First Results", J. Plant Physiol. 160 (2003), pp. 779-802.			
	CK	Domergue, F. et al., "Cloning and Functional Characterization of Phaeodactylum tricornutum Front-End Desaturases Involved in Eicosapentaenoic Acid Biosynthesis", Eur. J. Biochem. 269 (2002), pp. 4105-4113.			
	CL	Totani, N. et al., "The Filamentous Fungus Mortierella alpina, High in Arachidonic Acid", Lipids, 22:2 (1987), pp. 1060-1062.			
	CM	Cleland, L.G. et al., "Fish Oil and Rheumatoid Arthritis: Antiinflammatory and Collateral Health Benefits", The Journal of Rheumatology, 27:10 (2000), pp. 2305-2307.			
	CN	Vazquez-Pinto, R. et al., "Heterotrophic Production Potential of Omega-3 Polyunsaturated Fatty Acids by Microalgae and Algae-like Microorganisms", Botanica Marina 41 (1998), pp. 553-558.			
↓	CO	Tvrifik, P. et al., "Role of a New Mammalian Gene Family in the Biosynthesis of Very Long Chain Fatty Acids and Sphingolipids", The Journal of Cell Biology, 149:3 (2000) pp. 707-717.			
	CP	Guehnemann-Schaefer, K. et al., "Fatty Acid β-oxidation in Glyoxysomes. Characterization of			

Examiner Signature	/Elizabeth McElwain/	Date Considered	04/22/2010
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT			
(Use as many sheets as necessary)			
Sheet	3	of	5
		Attorney Docket Number	13987-00020-US

[E.M.]	a New Tetrafunctional Protein (MFPIII)", <i>Biochimica et Biophysica Acta</i> 1256 (1995), pp. 181-186.
CQ	Meyer, A. et al., "Novel Fatty Acid Elongases and Their Use for the Reconstitution of Docosahexaenoic Acid Biosynthesis", <i>Journal of Lipid Research</i> 45 (2004), pp. 1899-1909.
CR	Sakuradani, E. et al., " Δ 6-Fatty Acid Desaturase from an Arachidonic Acid-Producing Mortierella Fungus Gene Cloning and Its Heterologous Expression in a Fungus, <i>Aspergillus</i> ", <i>Gene</i> 238 (1999), pp. 445-453.
CS	Kinney, A.J., "Genetic Engineering of Oilseeds for Desired Traits", in "Genetic Engineering, Principles and Methods", Vol. 19, Editor: J. Setlow, pp. 149-166.
CT	Voelker, T., "Plant Acyl-ACP Thioesterases: Chain-Length Determining Enzymes in Plant Fatty Acid Biosynthesis", in "Genetic Engineering, Principles and Methods", Vol. 18, Editor: J. Setlow, pp. 111-113.
CU	Stuke, J.E. et al., "The OLE1 Gene of <i>Saccharomyces cerevisiae</i> Encodes the $\Delta 9$ Fatty Acid Desaturase and Can Be Functionally Replaced by the Rat Stearyl-CoA Desaturase Gene", <i>The Journal of Biological Chemistry</i> 265:33 (1990), pp. 20144-20149.
CV	Zank, T.K. et al., "Cloning and Functional Expression of the First Plant Fatty Acid Elongase Specific for Δ^4 -Polyunsaturated Fatty Acids", <i>Biochemical Society Transactions</i> 28:6 (2000), pp. 654-658.
CW	Poulos, A., "Very Long Chain Fatty Acids in Higher Animals - A Review", <i>Lipids</i> 30:1 (1995), pp. 1-14.
CX	Huang, Y-S. et al., "Cloning of $\Delta 12$ - and $\Delta 6$ -Desaturases from <i>Mortierella alpina</i> and Recombinant Production of γ -Linolenic Acid in <i>Saccharomyces cerevisiae</i> ", <i>Lipids</i> 34:7 (1999), pp. 649-659.
CY	Tocher, D.R. et al., "Recent Advances in the Biochemistry and Molecular Biology of Fatty Acyl Desaturases", <i>Prog. Lipid Res.</i> 37:2/3 (1998), pp. 73-117.
CZ	Horrocks, L.A. et al., "Health Benefits of Docosahexaenoic Acid (DHA)", <i>Pharmacological Research</i> 40:3 (1999), pp. 211-225.
CA1	McKeon, T. et al., "Stearoyl-Acyl Carrier Protein Desaturase from Safflower Seeds", in Methods in Enzymology, Vol. 71, Part C: Lipids, Editor: J. Lowenstein (1981), New York, pp. 275-281.
CB1	Takeyama, H. et al., "Expression of the Eicosapentaenoic Acid Synthesis Gene Cluster from <i>Shewanella</i> sp. in a Transgenic Marine Cyanobacterium, <i>Synechococcus</i> sp.", <i>Microbiology</i> 143 (1997), pp. 2725-2731.
CC1	Murphy, D.J. et al., "Biosynthesis, Targeting and Processing of Oleosin-like Proteins, Which are Major Pollen Coat Components in <i>Brassica napus</i> ", <i>The Plant Journal</i> 13:1 (1998), pp. 1-16.
CD1	Wang, X.-M. et al., "Biosynthesis and Regulation of Linolenic Acid in Higher Plants", <i>Physiol. Biochem.</i> 26:6 (1988), pp. 777-792.
CE1	Zank, T.K. et al., "Cloning and Functional Characterisation of an Enzyme Involved in the Elongation of $\Delta 5$ -polyunsaturated Fatty Acids from the Moss <i>Physcomitrella patens</i> ", <i>The Plant Journal</i> 31:3 (2002), pp. 255-268.
CF1	Millar, A.A. et al., " <i>CUT1</i> , an Arabidopsis Gene Required for Cuticular Wax Biosynthesis and Pollen Fertility, Encodes a Very-Long-Chain Fatty Acid Condensing Enzyme", <i>The Plant Cell</i> 11 (1999), pp. 825-838.
CG1	Caider, P.C., "Dietary Modification of Inflammation with Lipids", <i>Proceedings of the Nutrition Society</i> 61 (2002), pp. 345-358.
CH1	Kunau, W.-H. et al., " β -oxidation of Fatty Acids in Mitochondria, Peroxisomes, and Bacteria: A Century of Continued Progress", <i>Prog. Lipid Res.</i> 34:4 (1995), pp. 267-342.
CI1	Beaudoin, F. et al., "Heterologous Reconstitution in Yeast of the Polyunsaturated Fatty Acid Biosynthetic Pathway", <i>Proceedings of the National Academy of Sciences of the United States of America</i> 99:26 (2002), pp. 16530-16535.

Examiner Signature	/Elizabeth McElwain/	Date Considered	04/22/2010
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STATEMENT BY APPLICANT**

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Sheet	4	of	5	Attorney Docket Number	13987-00020-US
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/F M/	of America 97:12 (2000), pp. 6421-6426.	
CJ1	Ohlrogge, J. et al., "Lipid Biosynthesis", The Plant Cell 7 (1995), pp. 957-970.	
CK1	Millar, A.A. et al., "Very-long-chain Fatty Acid Biosynthesis is Controlled through the Expression and Specificity of the Condensing Enzyme", The Plant Journal 12:1 (1997), pp. 121-131.	
CL1	Shimokawa, H., "Beneficial Effects of Eicosapentaenoic Acid on Endothelial Vasodilator Functions in Animals and Humans", World Rev. Nutr. Diet 88 (2001), pp. 100-108.	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached.

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